COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST REGIONAL OFFICE
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CERTIFIED MAIL

March 7, 2007

William Thibeault
New Venture Associates, LLC
85-87 Boston St.
Everett, MA 02149

Re: NEWBURYPORT - Solid Wastes
Crow Lane Landfill
Geotechnical Evaluation Perimeter Berm Design
Paragraph 1(p) - Notice of Deficiency
FMF No. 39545

Dear Mr. Thibeault:

The Massachusetts Department of Environmental Protection, Northeast Regional Office, Bureau of Waste Prevention, Solid Waste Management Section (MassDEP) has reviewed the geotechnical evaluation of the perimeter berm design for the Crow Lane Landfill, Newburyport, Massachusetts. SITEC Environmental, Inc. ("SITEC") of Marshfield, Massachusetts submitted the geotechnical evaluation and associated design plans to MassDEP on behalf of New Ventures Associates, LLC of Everett, Massachusetts ("New Ventures") pursuant to paragraph 1(p) of the Preliminary Injunction entered on October 20, 2006 in *Commonwealth of Massachusetts v. New Ventures, LLC,* Suffolk Superior Court, Civil Action No. 06-0790C, as amended by order of the Court on November 1, 2006 and February 22, 2007 (the "Order"). Geocomp Corporation ("Geocomp") of Boxborough, Massachusetts performed the geotechnical analysis of the berm design.

MassDEP contracted with Shaw Environmental, Inc. of Salem, New Hampshire ("Shaw") for review of the geotechnical evaluation including the proposed perimeter berm design. Shaw provided MassDEP with comments on the geotechnical evaluation and, as a result, on January 30, 2007 MassDEP requested additional detail from SITEC on the geotechnical

analysis. In response, on February 14, 2007, SITEC provided the MassDEP with a report prepared by Geocomp titled: *Summary of Results: Slope Stability analysis of Reinforced Berm Design for Crow Lane Landfill*, which has also been reviewed by MassDEP and Shaw.

In addition, on February 2, 2007, Mr. John Morris, Director of the City of Newburyport's Department of Public Health requested by email that the MassDEP provide the City of Newburyport with the opportunity to comment, by February 23, 2007, on the geotechnical evaluation and the amended Corrective Action Design. On February 22, 2007, Mr. Morris submitted to MassDEP by email comments on the geotechnical evaluation and berm design prepared by Metcalf and Eddy of Wakefield, Massachusetts ("M&E") on behalf of the City of Newburyport. The comments provided by M&E have been considered in MassDEP's review of the geotechnical evaluation and berm design.

The MassDEP review found that the geotechnical evaluation is incomplete to the extent that MassDEP is not assured that the landfill perimeter berm will remain stable. The perimeter berm includes the existing lower embankment berm and the proposed Reinforced Earth Wall that is to be constructed on top of it. Unstable conditions of concern include possible erosion of the surface materials, localized slumps, or failure of the perimeter berm. The perimeter berm is critically important to the containment of waste materials and the prevention of pollutant release to the environment.

As described below, MassDEP has determined that additional information is required in order to complete the geotechnical review of the design. The following information must be provided to MassDEP to demonstrate that this structure will remain stable over time.

1. Berm Foundation:

    a. Additional information must be supplied demonstrating the existing foundation soil properties are suitable to support the berm and achieve the parameters used in design of the berm and computation of its stability. This information should be in the form of test pit or boring logs, and laboratory test data from a sufficient number of samples identified on the logs along the entire length of the berm.

    b. Additional information must be supplied demonstrating all unsuitable materials have been removed from under the existing berm. This information may be in the form of detailed construction notes taken during construction, photographic documentation, or, in the absence of such conclusive material, new information obtained by boring though the berm and subsurface soils along the entire length of the berm.

2. Berm Construction:

    a. Additional information must be supplied demonstrating the existing berm was constructed with materials of a minimum strength used in the design stability analysis. Materials from various sources have been used for berm construction. An insufficient number of samples have been tested to assure that all berm materials meet the minimum shear strength identified by the stability calculations. If this documentation is not currently available, then it may be obtained from borings through the berm with continuous sampling and laboratory testing of representative samples.

    b. Additional information must be supplied demonstrating the existing berm was constructed as a controlled fill. This would include construction field notes, photos showing lift thickness (typically 9 to 12 inches) and documentation that compaction took place with an adequate number of passes of a vibrator roller compactor, and in-situ moisture density test results demonstrating sufficient material compaction was achieved. Alternatively, adequate berm strength may be demonstrated by borings through the berm with continuous sampling and measurement of blow counts. A geotechnical engineer must interpret the data.

    c. Additional information must be supplied demonstrating the berm surface material achieves a factor of safety (FS) suitable for the design. The stability analysis provided assumed a berm material shear strength of 38 degrees. This provides a factor of safety of 1.17 against surficial sloughing without any environmental forces, such as runoff, working on the material. A factor of safety of less than 1.5 is not suitable when considering these factors. Additional information must be supplied demonstrating how the final surface slope will be stabilized. Materials that will ensure the FS suitable for this design must be identified and plans must be provided that demonstrate that the placement of the materials will protect the underlying more erosive material.

    d. The 1:1 (H:V) rip-rap sloped berm along the west and north berm must be shown to be stable from surface failure, localize slump failure and global stability failure. Design analysis, details, and specifications must be provided for constructing the proposed stone buttress at the base of the westerly and northerly slopes.

3. Reinforced Earth Wall Design – Additional information must be supplied demonstrating the wall can be constructed on top of the existing berm in a stable manner. This information shall include:

    a. A revised construction specification Part 2.04. The specified gradation for the reinforced backfill (geogrid in-fill) is not consistent with materials specifications required for achieving an internal friction angle of 40 degrees.

b. Specifications for all materials to be used, including Clean Structural Fill.

c. Revisions as necessary to achieve minimum acceptable factors of safety for both global and bearing capacity failures of the berm. A factor of safety lower than 1.5 is not suitable given the lack of material data for the underlying soils and/or the construction of the existing portions of the berm. Such revisions may include revision of the design to increase stability and/or revision of the stability analysis to reduce the level of uncertainty of the analysis/design.

d. A revised stability analysis to check for circular failure through the berm subgrade for the worst-case condition, as well as additional stability analysis for the worse case combination of both wall and berm heights.

e. Additional slope stability analysis must be performed to include the potential slip surface along the Geomembrane located behind and under the Reinforced Earth Wall. This condition is currently in-place and should be represented by surveyed as-built conditions in the most critical locations, if different from the existing cross section locations and the additional analysis requested under item d, above.

f. Additional details of the geogrid wall facing and the secondary geogrid reinforcements (of shorter length) used in between the primary geogrids for wrapping around the wall facing.

g. Revised design drawings to match the conclusions of the geogrid reinforcing determined by the stability analysis.

h. Revision of the test designation for tensile strength of geogrid to be ASTM D6637 and the test method for junction strength of the geogrid to be GRI GG-2.

4. A Construction Quality Assurance (CQA) Plan that includes, at a minimum:

a. A quality control program that will be used for assuring the berm, including the wall, will be constructed in accordance with the construction plans and specifications.

b. The preparation and submission of a post-construction Certification Report that provides detailed documentation that the requirements of the design, specifications and CQA Plan have been met. The report will be prepared and certified by a Massachusetts Professional Engineer in accordance with 310 CMR 19.011. The Certification report must include, but not limited to, information as described in Item 2.b above.

Pursuant to section 1 (p) of the Order, New Ventures shall within seven (7) days of receipt of this notice submit such materials as necessary to address the deficiencies and concerns identified by MassDEP in this notice. Failure by you to take adequate action in response to this letter could result in serious legal consequences. MassDEP reserves the right to exercise the full extent of its legal authority in order to obtain full compliance with all applicable requirements, including, without limitation, those in the Order, M.G.L. Chapter 111, § 150A and the implementing regulations thereunder, 310 CMR 19.000, and M.G.L. Chapter 21E and the implementing regulations thereunder, 310 CMR 40.0000.

If you have any questions regarding this matter please contact David Adams at 978-694-3295.

Sincerely,

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Solid Waste Management

JAC
John A. Carrigan
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Cc:

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